Proposed Updates to Nursing Home Chapter of State Health Plan

Proposed Nursing Home Bed Need Methodology Demonstration

October 4, 2018

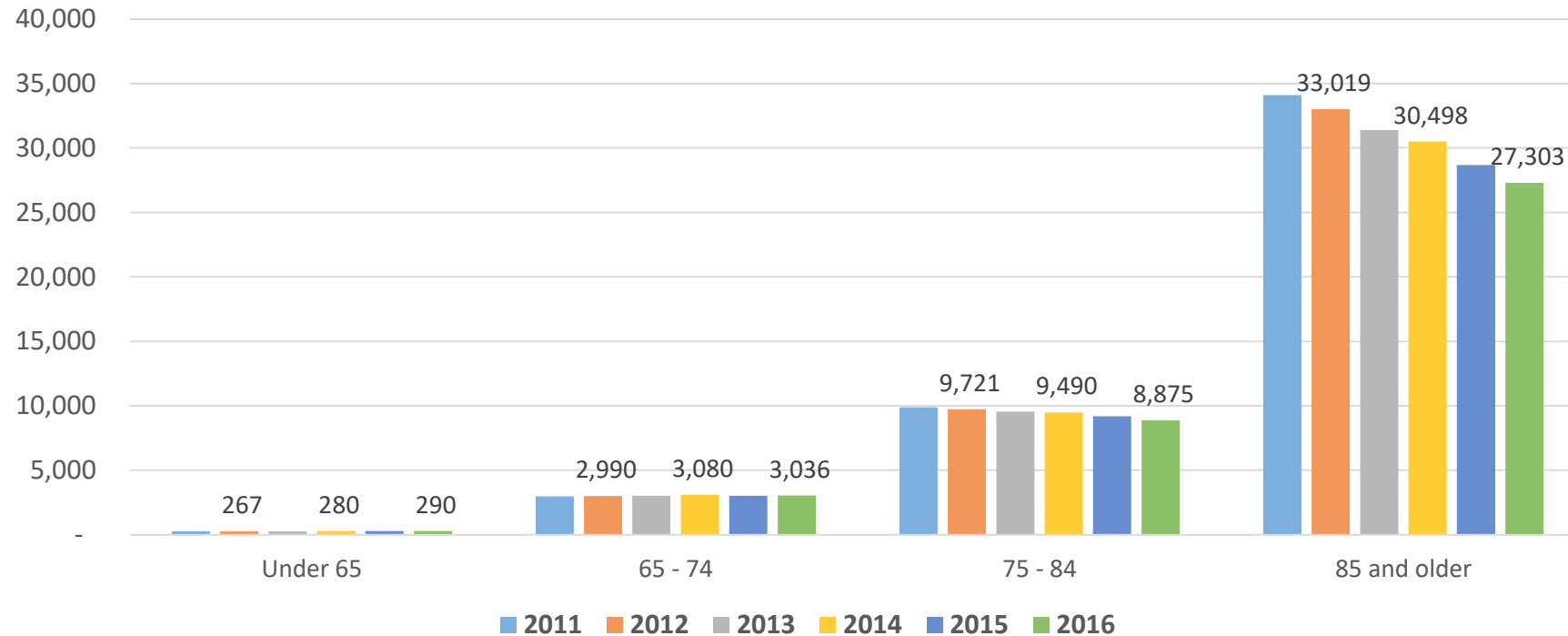# Proposed Nursing Home Bed Need Methodology

The proposed bed need methodology is similar to the current bed need methodology. It improves on and simplifies some key steps as follows.

- Takes into account patterns of use by age by modeling demand using observed rates of change in statewide use rates;

- Factors in use of Maryland nursing homes by non-Maryland residents;

- Simplifies the migration adjustment for Maryland jurisdictions by means of net in- and out-migration;

- Shortens the projection horizon to five years from the base year;

- Uses total estimated and projected population; and

- Adds a jurisdictional occupancy standard as a final step in making a finding of net bed need.

Data Sources

- Minimum Data Set
- Maryland Department of Planning population projection
  http://www.mdp.state.md.us/msdc/s3_projection.shtml
- MHCC LTC Bed Inventory, as August 31 of 2018
- MHCC Long Term Care Survey

Step 1: Maryland Statewide Use Rate Trends, 2011 - 2016

State	Age	Use Rate (Patient Days per 1,000 Population)						Annual Change of Use Rate					Avg. Annual Change
		2011	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016	
MD	Under 65	265	267	269	280	286	290	0.7%	0.9%	4.1%	1.9%	1.5%	1.8%
MD	65 - 74	2,980	2,990	3,015	3,080	3,027	3,036	0.3%	0.8%	2.2%	-1.7%	0.3%	0.4%
MD	75 - 84	9,879	9,721	9,540	9,490	9,181	8,875	-1.6%	-1.9%	-0.5%	-3.3%	-3.3%	-2.1%
MD	85 and older	34,101	33,019	31,379	30,498	28,680	27,303	-3.2%	-5.0%	-2.8%	-6.0%	-4.8%	-4.3%

Step 2: Maryland Jurisdictional Patient Days Projection

Jurisdiction of Residence	Age	2016 Resident Days	2016 Population Estimates	2016 Use Rate	Statewide Avg. Use Rate Change	2021 Use Rate	2021 Projected Population	2021 Projected Resident Days
	Under 65	20,201	58,904	343	1.8%	375	59,789	22,438
	65 - 74	42,794	7,719	5,544	0.4%	5,650	8,724	49,293
ALLEGANY	75 - 84	76,049	4,666	16,298	-2.1%	14,645	5,468	80,079
	85 and older	112,238	2,076	54,057	-4.3%	43,297	2,118	91,711
	Total	251,282	73,365				76,099	243,521
	Under 65	90,433	484,650	187	1.8%	204	481,910	98,400
	65 - 74	94,567	49,397	1,914	0.4%	1,951	56,255	109,757
ANNE ARUNDEL	75 - 84	139,999	21,792	6,424	-2.1%	5,773	27,386	158,093
	85 and older	170,001	8,910	19,081	-4.3%	15,283	9,711	148,404
	Total	495,000	564,748				575,262	514,655
	Under 65	229,008	696,631	329	1.8%	360	694,950	249,997
	65 - 74	254,320	74,383	3,419	0.4%	3,484	87,431	304,652
BALTIMORE COUNTY	75 - 84	366,419	37,672	9,727	-2.1%	8,740	42,419	370,743
	85 and older	669,760	23,654	28,315	-4.3%	22,679	23,930	542,697
	Total	1,519,507	832,339				848,730	1,468,089

Assumption: Jurisdictional use rate for each age group will change over the five-year forecasting period at the annual rate of change observed for the entire state over the past five years.

Step 3: In-Migration from Outside Maryland or of Unknown Origin

Jurisdiction of Care	Patient Days Originating from Outside Maryland or of Unknown Origin			Average of 2014-2016	2016 Resident Days	Ratio of Avg. In-migration Days to Resident Days	2021 Projected Resident Days	2021 Projected Adjusted Patient Days
	2014	2015	2016					
ALLEGANY	39,311	39,148	37,928	38,796	251,282	15.4%	243,521	281,118
ANNE ARUNDEL	19,089	21,182	24,348	21,540	495,000	4.4%	514,655	537,050
BALTIMORE COUNTY	28,539	30,494	33,230	30,754	1,519,507	2.0%	1,468,089	1,497,803

Assumption: Ratio of in-migration days observed in recent three years from all other states or of unknown origin to the base year resident days is assumed to remain constant in the future.

Step 4: Net Migration for Maryland Jurisdictions

Jurisdiction	In-Migration Days			Out-Migration Days			Net Migration Days			Avg. Net Migration Days of
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014 - 2016
ALLEGANY	23,104	23,981	23,192	19,262	18,683	19,925	3,842	5,298	3,267	4,136
ANNE ARUNDEL	164,755	178,534	182,958	106,555	104,734	108,762	58,200	73,800	74,196	68,732
BALTIMORE COUNTY	552,567	569,505	561,367	375,387	377,035	378,397	177,180	192,470	182,970	184,207

In-Migration Days – Patient days of patients getting care in the jurisdiction's CCFs but originating in other Maryland jurisdictions

Out-Migration Days – Patient days of patients originating in the jurisdiction but getting care in another Maryland jurisdiction

Net Migration Days – the difference between in-migration days and out-migration days

Assumption: Net migration for each jurisdiction will not change over the five year forecasting period.

Step 5: 2021 Maryland Nursing Home Bed Need Projection

Jurisdiction	(a) 2016 Resident Days	(b) 2016 Population	(c) 2021 Projected Population	(d) 2021 Projected Resident Days	(e) In-Migration Days from Outside MD or of Unknown Origin (Avg. of 2014-2016)	(f) Ratio of In-Migration Days to Resident Days (=e/a)	(g) 2021 Total Projected Patient Days (=d*(1+f))	(h) 2021 Projected Gross Bed Need at 95% Occu (=g/366/0.95)	(i) Net Migration for MD Jurisdictions (Avg. of 2014-2016)	(j) Net Bed Need due to Net Migration at 95% Occu (=i/366/0.95)	(k) 2021 Adjusted Bed Need (=h+j)	(l) 2018 Bed Inventory	(m) 2021 Adjusted Net Bed Need (=l-k)	(n) Avg Occu 2015&2016
ALLEGANY	251,282	73,365	76,099	243,521	38,796	15.4%	281,119	809	4,136	12	820	930	-110	87.7%
ANNE ARUNDEL	495,000	564,748	575,262	514,655	21,540	4.4%	537,050	1,545	68,732	198	1,742	1,817	-75	89.1%
BALTIMORE	1,519,507	832,339	848,730	1,468,089	30,754	2.0%	1,497,802	4,308	184,207	530	4,838	5,403	-565	89.5%
BALTIMORE CITY	1,455,027	615,826	616,598	1,436,559	23,031	1.6%	1,459,298	4,197	-195,555	-562	3,635	3,886	-251	90.4%
CALVERT	102,392	98,176	126,717	148,205	3,613	3.5%	153,435	441	-12,319	-35	406	310	96	87.7% *
CAROLINE	55,394	33,118	34,468	55,679	2,692	4.9%	58,385	168	-775	-2	166	187	-21	83.8%
CARROLL	236,807	167,765	169,547	252,883	15,104	6.4%	269,012	774	48,362	139	913	931	-18	87.9%
CECIL	131,524	102,795	105,922	141,253	18,154	13.8%	160,750	462	-8,954	-26	437	456	-19	80.2%
CHARLES	164,371	157,779	169,160	183,094	9,470	5.8%	193,643	557	-16,297	-47	510	495	15	89.8% *
DORCHESTER	81,754	32,648	34,638	82,348	880	1.1%	83,234	239	-5,967	-17	222	281	-59	87.0%
FREDERICK	346,274	248,466	266,023	380,785	21,403	6.2%	404,321	1,163	-14,625	-42	1,121	1,148	-27	88.9%
GARRETT	80,415	29,729	30,407	78,630	16,505	20.5%	94,769	273	6,895	20	292	317	-25	92.7%
HARFORD	270,903	251,911	258,986	292,406	6,598	2.4%	299,528	861	-19,953	-57	804	831	-27	91.3%
HOWARD	210,413	316,744	340,453	237,196	7,632	3.6%	245,799	707	-30,085	-87	620	629	-9	89.3%
KENT	58,161	19,848	21,021	60,768	2,221	3.8%	63,089	181	6,433	19	200	228	-28	80.2%
MONTGOMERY	1,091,648	1,038,910	1,058,712	1,077,860	256,016	23.5%	1,330,642	3,827	99,832	287	4,114	4,584	-470	87.0%
PRINCE GEORGES	900,467	907,547	920,100	992,036	248,410	27.6%	1,265,707	3,640	-162,919	-469	3,172	2,974	198	91.9%
QUEEN ANNES	49,389	49,039	51,129	53,347	620	1.3%	54,017	155	-12,381	-36	120	120	0	85.5%
SAINT MARYS	128,568	113,726	121,878	138,509	12,013	9.3%	151,451	436	52,976	152	588	611	-23	92.9%
SOMERSET	65,882	25,903	26,992	65,254	4,028	6.1%	69,244	199	-2,833	-8	191	214	-23	87.5%
TALBOT	76,422	37,832	39,082	76,500	2,409	3.2%	78,911	227	5,080	15	242	269	-27	88.1%
WASHINGTON	306,165	151,312	158,656	307,780	47,063	15.4%	355,091	1,021	10,526	30	1,052	1,142	-90	89.2%
WICOMICO	166,498	102,765	107,198	173,983	10,805	6.5%	185,274	533	6,537	19	552	613	-61	81.3%
WORCESTER	94,027	51,727	53,612	94,636	14,720	15.7%	109,451	315	-11,053	-32	283	307	-24	85.5%
Statewide	**8,338,290**	**6,024,018**	**6,211,390**	**8,555,976**	**814,477**	**9.8%**	**9,401,022**	**27,038**	**0**	**0**	**27,038**	**28,683**	**-1,645**	**88.9%**

* Bed need will be adjusted as zero since average occupancy is below 90%.

Questions?

Please contact

Hui Su, MHCC Methodologist

hui.su@maryland.gov

Paul Parker, Director

paul.parker@maryland.gov

Center for Health Care Facilities Planning and Development